



# Working Papers

[www.cesifo.org/wp](http://www.cesifo.org/wp)

## Bracelets of Pride and Guilt? An Experimental Test of Self-Signaling in Charitable Giving

Joël J. van der Weele  
Ferdinand A. von Siemens

CESIFO WORKING PAPER NO. 4674  
CATEGORY 13: BEHAVIOURAL ECONOMICS  
FEBRUARY 2014

*An electronic version of the paper may be downloaded*

- *from the SSRN website:* [www.SSRN.com](http://www.SSRN.com)
- *from the RePEc website:* [www.RePEc.org](http://www.RePEc.org)
- *from the CESifo website:* [www.CESifo-group.org/wp](http://www.CESifo-group.org/wp)

# Bracelets of Pride and Guilt? An Experimental Test of Self-Signaling in Charitable Giving

## Abstract

Self-signaling theory argues that individuals partly behave prosocially to create or uphold a favorable self-image. To study self-signaling theory, we investigate whether increasing self-image concerns affects charitable giving. In our experiment subjects divide 20 euros between themselves and a charity. Some randomly determined participants are induced to wear a bracelet for the two weeks following their donation decision. This bracelet serves as a private reminder of the experiment, thus making the donation more important for future self-image. If self-signaling plays a role, participants having to wear the bracelet should donate more. We do not find that wearing a bracelet has any effect on donation behavior. This holds although subjects having to wear the bracelet report that at the moment of making the donation, they expect to more often remember the experiment in the following two weeks.

JEL-Code: C910, C720, D830.

Keywords: self-signaling, dictator games, charitable giving.

*Joël J. van der Weele*  
*University of Amsterdam*  
*Faculty of Economics and Business*  
*Roeterstraat 11*  
*The Netherlands – 1018 WB Amsterdam*  
*vdweele@uva.nl*

*Ferdinand A. von Siemens*  
*Goethe University*  
*Faculty of Economics and Business Studies*  
*Grüneburgplatz 1*  
*Germany – 60323 Frankfurt am Main*  
*vonsiemens@econ.uni-frankfurt.de*

February 7, 2014

We want to thank Luigi Butera, Dirk Engelmann, Holger Herz, Dan Houser, Michael Kosfeld, Devesh Rustagi, Roberto Weber, and Christian Zehnder for very useful comments. We also thank Kevin Bauer and Karin Hettwer for great research assistance. Financial support from the research fund administered by the Faculty of Economics and Business Administration at Goethe University is gratefully acknowledged.

# 1 Introduction

People behave prosocially for different reasons, including pure altruism and maintaining a favorable social reputation. Psychologists like Baumeister (1998) emphasize in addition the importance of favorable self-image, that is, being able to think of yourself as a morally upright or altruistic person. Fiske (2009) indeed argues that the maintenance and enhancement of a good self-image is one of five core motives of human beings. A good moral self-image may bring direct utility benefits, provide personal motivation or can make it easier to convince others that one is trustworthy.

Self-image concerns can promote prosocial behavior because observing or remembering their good actions reassures people that they are indeed prosocial.<sup>1</sup> This idea seems paradoxical, since it assumes that people both know and do not know their own preferences for being prosocial. Moreover, individuals interpreting their own behavior may take into account that behavior is influenced by self-image concerns, and need not truly stem from social preferences. To address these questions, Bodner and Prelec (2003) and Bénabou and Tirole (2006, 2011) model self-image concerns as an intra-personal game with asymmetric information. They assume that at the moment of choice, a person's true preferences influence the decision. In the absence of choice, the person does not know her preferences, and she cannot deduce them by simply imagining what she would do in a given situation. Instead, she makes rational (Bayesian) inferences on the basis of her own observable actions. Since the person would like to believe that she has altruistic preferences, the result is a game of self-signaling, where both sender and receiver reside within the same person.

One interpretation of this model is that a decision making part of an individual signals to an uninformed Freudian “superego,” a Smithian “man in the breast,” or to future, less informed incarnations of herself (Bénabou and Tirole, 2011). In the context of charitable giving, the person who faces a donation decision may experience a fleeting feeling of compassion towards the beneficiary that is unobservable and hard to recall afterwards, but which she can signal by making a (large) donation. Bénabou and Tirole (2011) demonstrate that an increase in the importance of the self-signaling motive leads to increased giving, as signaling altruism to future incarnations of herself becomes more important.

In this paper we study the prediction that an increase in the importance of the self-signaling motive leads to increased giving. In our experiment subjects face the moral task of dividing 20 euros between themselves and the activities of the German Red Cross in Syria. At the

---

<sup>1</sup>Individuals might also try to signal to themselves their willpower or ability, see for example Bénabou & Tirole (2004) and Köszegi (2006). We focus on the importance of self-signaling for prosocial behavior.

start of the experiment we attach a cloth bracelet to the wrist of every participant. In the “control treatment” the bracelet is cut off from their wrist after the donation decision. In the “bracelet treatment” the bracelet is not cut off, but serves as “personal reminder of participation in the experiment.” Subjects know whether after their donation their bracelet will be cut off or not. Participants can earn additional 10 euros by coming back after two weeks and filling out a short questionnaire. To check that subjects in the “bracelet treatment” did indeed wear the bracelet, obtaining the 10 euros was conditional on wearing an intact bracelet for them.

Based on self-signaling theory, we expect subjects in the bracelet treatment to engage more in self-signaling and hence to donate more. Whereas subjects in the control treatment can – maybe strategically – forget their own miserly behavior, subjects in the bracelet treatment are expected to be frequently reminded of their donation for two weeks by wearing the bracelet. This increases the incentives to use high donations for self-signaling altruism to future selves. We find that our treatment manipulation is effective since wearing the bracelet increases reported anticipation of remembering the experiment from “From Time To Time” to “Often.” This increase is highly significant ( $p$ -value of less than 0.005). But wearing the bracelet has no substantial effect on donations: participants in our control treatment donate on average 7.09 euros, whereas participants in our bracelet treatment donate on average 6.86 euros. This difference is not statistically significant ( $p$ -value of 0.97).

Related empirical evidence on moral actions under anonymous conditions is consistent with self-image concerns as an important driver of behavior. Dana, Weber & Kuang (2007) and Grossman & van der Weele (2013) demonstrate that individuals behave more selfishly in situations in which it is possible to dilute self-signals of altruism. Mazar, Amir & Ariely (2008) show that people behave less selfishly when primed with the importance of moral rules. Gneezy, Gneezy, Riener & Nelson (2012) show that market participants are eager to profit from favorable deals when the price is given, but do not like to pay peanuts if they are responsible for choosing the price themselves. Shu, Gino & Bazerman (2011) document that people strategically misinterpret and forget information that might make them feel bad about their dishonest behavior.

Although the above cited empirical evidence is consistent with self-signaling theory, it does provide at most indirect empirical evidence, since the fundamental mechanisms underlying self-signaling are not targeted directly. More direct attempts to test self-signaling models produce mixed results. In Grossman (2009) subjects interact in dictator games where the probability that their decision is implemented varies exogenously. Self-signaling predicts that

a lower probability of implementation should lead to higher donations, but this is not reflected in the data. Cueva & Dessi (2012) let subjects observe public statements of donations of others, which they argue increases the salience of self-image concerns, and find that this increases donations for those with intermediate levels of “social potency.” They argue that this finding is consistent with self-signaling theory. Due to these mixed results, there exists a need for further direct empirical investigations of the importance of self-signaling for prosocial behavior.

## 2 Experimental Design and Procedures

The main idea for our study of self-signaling theory is to exogenously vary how often subjects remember participation in the experiment. We thus look for some simple device that works as a constant reminder to the subjects that is hard to escape from. Moreover, to minimize social image concerns, we want the device to be innocuous and not attract undue attention from outsiders. We therefore use cloth bracelets that are closed with a metal lock (a picture of the bracelets can be found in the appendix). These bracelets are attached to the wrist of subjects and thus work as constant reminders. We can ensure that subjects wear the bracelet as it cannot be taken off without breaking the lock. The bracelets are common for entrance control at music festivals and all-inclusive holiday resorts, and many people wear similar bracelets for extended periods of time as reminder of the festival or holidays. Thus the bracelets are unlikely to attract a lot of attention from outsiders,<sup>2</sup> and participants may easily understand and anticipate that the bracelet works as reminder of participation in the experiment.

In the following we describe our experimental design in detail. Subjects are recruited from the student population of the Goethe University Frankfurt using the online recruitment system ORSEE as introduced by Greiner (2003). We clearly announce in the email invitations to the experiments that subjects might have to wear a cloth bracelet to earn additional money. We remind subjects of this announcement before they enter the laboratory. We thus avoid that some subjects suddenly refuse to wear a bracelet during the sessions. In the end nobody refused to be put on the bracelet.

Upon entering the lab a randomly chosen orange or yellow plain cloth bracelet is attached to each participant’s wrist by squeezing shut a metal ring with pincers. In Germany yellow and orange have no obvious connotations. Just wearing a bracelet while contemplating the donation decisions might affect behavior. We thus attach bracelets to all participants in both

---

<sup>2</sup>We ask subjects in some questionnaires about both their experience and the received attention from outsiders. We later discuss the link between these measures and our results.

treatments. Any treatment effect can therefore be attributed to the effect of having to wear the bracelet in the next two weeks. By wearing the bracelet during their decision, subjects can further gather some experience wearing the bracelet. This helps them to anticipate how wearing the bracelet might remind them of participation in the experiment. Wearing the bracelet is particularly noticeable in the first few minutes. We thus believe that subjects with no previous experience wearing such bracelets overestimate the extent to which the bracelet will remind them of participation in the experiment.

After the bracelet is attached to their wrists, subjects draw a seat number and an envelope marked “Red Cross” that contains the instructions, a description of the activities of the Red Cross in Syria, a short questionnaire, and overall 20 euros in one 10-euro bill, one 5-euro bill, and five 1-euro coins. Subjects take their seat at a private cubicle. There they find another envelope marked “For Me.” Once all subjects are seated, the experimenter tells them to open the envelope marked “Red Cross.” Subjects are asked to read the instructions and the information about the Red Cross carefully (instructions can be found in the appendix).

The instructions explain that this is the first of two parts of the experiment. In this first part, the task consists of dividing 20 euros between the subject and the Red Cross. Subjects thus take the amount that they want to keep for themselves out of the “Red Cross” envelope and put it into the “For Me” envelope.<sup>3</sup> In addition, they fill out a short questionnaire. Subjects are told that they can enter the second part of the experiment by reporting to the secretarial office between 14 and 18 days after the first part of the experiment. The secretary checks that they indeed participate in the experiment, asks them to fill out a short questionnaire, and hands them an additional ten euros. Subjects are told that this procedure does not take more than two minutes.

Instructions are identical for both treatments except for two paragraphs. The first difference is one paragraph printed in bold which in the control treatment reads: “When exiting the room, we will cut off the bracelet from your wrist. Therefore, after the experiment is over, you do not continue to wear the bracelet you are wearing now.” In the bracelet treatment this paragraph is replaced by “The bracelet you are wearing will serve as your private reminder of today’s experiment. As we explain below, you can earn additional money by wearing the bracelet for two weeks.” These paragraphs are read aloud by the experimenter in all but the first session to make sure that subjects understand the situation.<sup>4</sup> The second difference in

---

<sup>3</sup>This feature of the design might emphasize the moral dimension of the donation decision, since taking money from the “Red Cross” envelope could feel almost like taking away money from the charity.

<sup>4</sup>In Session 1 the paragraph emphasizing that the bracelet would be cut off was not read out loud. Two subjects were surprised that their bracelet was removed upon leaving the laboratory. All empirical results are robust to excluding Session 1.

the instructions is the exclusive announcement in the bracelet treatment that subjects must produce an unbroken bracelet to receive their additional 10 euros in the second part of the experiment.

After about 10 minutes of deliberation time, the experimenter gently urges subjects to put their donation, the questionnaire, and the instructions into the “Red Cross” envelope, and then seal the envelope. They should also mark time and place for the second part of the experiment. Subjects are then called forward one by one, deposit their donation envelope in a box marked “Donations,” sign a confirmation that they have received money, and exit the room. In the control treatment the bracelet is cut from their wrist before exiting.

In the questionnaire of the first part of the experiment we ask subjects some usual background questions. We further ask how often participants donate to charity, and how often they expect to remember their participation in the experiment in the following two weeks. In the bracelet treatment, we also ask subjects whether they have experience in wearing similar bracelets, and whether they would have preferred not wearing the bracelet. In the questionnaire of the second part of the experiment we ask subjects how often over the past two weeks they have remembered their participation in the experiment, and whether they remember their donation. In our bracelet treatment we also ask subjects how often people have commented on their bracelet. Instructions and questionnaires can be found in the Appendix.

We conducted 6 sessions, 3 for each treatment. Sessions featured between 17 and 23 subjects. 122 subjects participated in the first part of the experiment, 58 in the control treatment and 64 in the bracelet treatment. Subjects were from all areas of studies with a large minority of 45% studying economics or business studies. 82% of the participants in the first part of the experiment also participated in the second part.

### 3 Results

Self-signaling theory predicts that our treatment will affect donations via anticipated memory of the first part of the experiment. To check whether our treatment manipulation works, we ask in the questionnaire in the first part of the experiment how often subjects expect to remember today’s experiment in the coming two weeks. Answers are measured on a 5-item scale ranging from 1 (“Never”) to 5 (“Very often”). In the control treatment the average score is 3.00 corresponding to the answer “From time to time.” In the bracelet treatment the average score is 4.02 corresponding to the answer “Often.” A two-sided Mann Whitney ranksum test reveals that the differences in responses are highly significant ( $p$ -value of 0.00)<sup>5</sup>.

---

<sup>5</sup>We round all numbers to two digits. We report  $p$ -value of less than 0.005 as  $p$ -values of 0.00.

We see the same pattern looking at our questionnaire data from the second part of the experiment, where we ask participants how often they remembered participation in the first part of the experiment over the past two weeks. As before answers are measured on a five-item scale ranging from 1 (“Never”) to 5 (“Very Often”). In the control treatment the average score is 2.77 corresponding to the answer “From Time To Time.” In the bracelet treatment the average score is 3.66 corresponding to “Often.” A two-sided Mann Whitney ranksum test reveals that this difference is highly significant ( $p$ -value of 0.00).

Table 1: Summary Statistics Questionnaire Responses

	Control Treatment	Bracelet Treatment	$p$ -value
Experience Experiments	2.83 (0.42)	2.67 (0.64)	0.22
Female	0.60 (0.49)	0.59 (0.53)	1.00
Charitable Donations	2.19 (0.89)	2.16 (0.92)	0.80
Anticipated Memory	3.00 (0.85)	4.02 (0.75)	0.00

Note: Mean answers of questionnaire items. Standard deviations in brackets.  $p$ -values from two-sided Mann-Whitney ranksum tests.

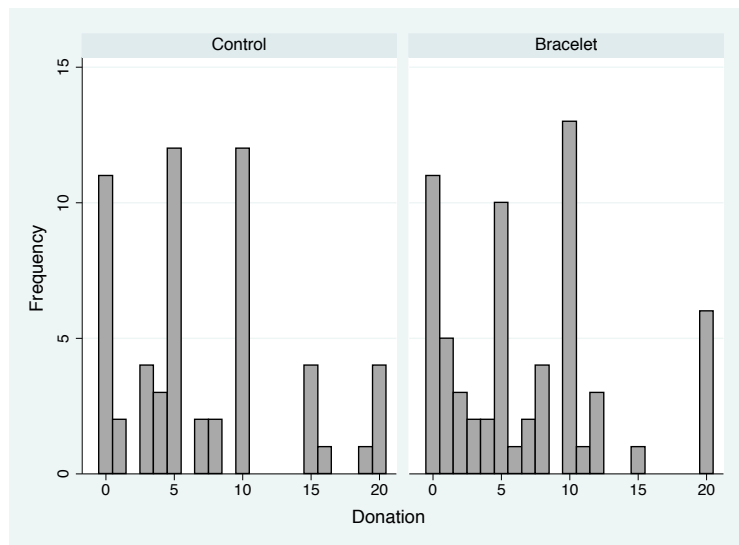
In Table 1 we also compare the values of the other questionnaire items across treatments. Two-sided Mann Whitney ranksum tests reveal that – except for anticipated memory – the difference in responses are far from statistically significant ( $p$ -values of at least 0.22). Not reported in the table, a Fisher’s exact test reveals that there is also no significant difference in the choices of field of study between the control and the bracelet treatment ( $p$ -value of 0.18). Given these results, the difference in anticipated remembrance is unlikely to be due to deficient randomization. We conclude that our treatment manipulation effectively increases anticipated memory of participation in the experiment.

Based on self-signaling theory, we thus expect donations to be higher in the bracelet treatment than in the control treatment, as donations in this treatment should have a stronger impact on future self-image. This prediction is not reflected in the data. We find that on average subjects donate 7.09 euros in the control treatment, and 6.86 euros in the bracelet treatment. Figure 1 shows the distribution of donations in both treatments. The distributions look similar, and a two-sided exact Kolmogorov-Smirnov test cannot reject the Null-hypothesis that the distributions are the same ( $p$ -value of 1.00). When we look at the frequencies of positive donations, we find that 82% make a positive donation in the control treatment, whereas 83% make a positive donation in the bracelet treatment. Further, 7% donate their entire endowment of 20 euro in the control treatment, whereas 9% donate their entire endowment



in the bracelet treatment. We cannot reject the null hypothesis that these frequencies are equal across treatments ( $p$ -values of 0.82 and 0.75, two-sided Fisher exact test). Of course, we might wrongly fail to reject the null hypothesis that there is no effect, because noise in the data is large compared to effect size. To investigate this possibility, we compute Cohen’s  $d$ . We find that  $d = 0.04$  with a 95%-confidence interval of  $[-0.32, 0.39]$ . Our data is therefore consistent with a small effect size ( $d = 0.2$ ), but not consistent with a medium ( $d = 0.5$ ) or large effect size ( $d = 0.8$ ).

Figure 1: Distribution of Donations in the Control and Bracelet Treatments.



While we do not find any significant aggregate treatment effect, self-signaling might have stronger implications for certain subgroups of participants. Croson & Gneezy (2009) argue that concerning moral or social decisions, women might react more strongly to changes in the context than men. Our treatment manipulation – which arguably changes the social context of the donation decision – might thus be particularly strong for women. In Table 2 we look at the treatment effect only considering women. A two-sided Mann-Whitney ranksum test reveals that there is no significant behavioral difference ( $p$ -value of 0.64). The same holds for men ( $p$ -value of 0.59).<sup>6</sup>

Bayesian updating is stronger for intermediate priors. Self-signaling theory thus suggests that subjects with an average self-image might have stronger incentives to signal their altruism to themselves (Bénabou and Tirole, 2011). In our first questionnaire subjects report on how

<sup>6</sup>To control for gender-specific treatment effects, we run control regressions that include the interaction of gender and treatment dummy. This does not affect our results. Details are available upon request.

often they donate to charity as measured on a five-point scale ranging from 1 (“Never”) to 5 (“Very Often”). Arguably those who report “Never” or “Very Often” have a very decided self-image.<sup>7</sup> In Table 2 we exclude subjects with these extreme reports. We do not find a significant treatment effect for the remaining subjects ( $p$ -value of 0.68 from a two-sided Mann-Whitney ranksum test). The same holds true if only consider subjects who donate to charity only “From Time To Time” ( $p$ -value of 0.92 from a two-sided Mann-Whitney ranksum test). We thus do not find any significant treatment effect even when looking at subgroups of our participants where self-signaling might make the strongest predictions. This contrasts with the results of Cueva & Dessi (2012) who report that increasing the saliency of the moral dimension of the donation decision affects the behavior of participants with an indistinct self-image as proxied by intermediate social potency.

Table 2: Mean Donations

	Control Treatment	Bracelet Treatment	$p$ -value
Entire Sample (N=122)	7.09 (5.95)	6.86 (5.87)	0.97
Women (N=74)	6.63 (4.90)	7.23 (5.53)	0.64
Men (N=47)	7.78 (7.33)	6.13 (5.56)	0.59
Indistinct Self-Image (N=92)	7.71 (6.23)	7.87 (5.84)	0.68

Note: Mean donations for the entire sample and selected subsamples. Standard deviations in brackets.  $p$ -values from two-sided Mann-Whitney ranksum tests.

Finally, we regress donations on a treatment dummy (“Bracelet”) and control variables from the questionnaires, reported in column (1) in Table 3. We also use a gender dummy (“Male”) and the reported frequency of charitable donations outside the laboratory as defined above (“Charitable Donations”). We control for how often subjects participated in an economic experiment (“Experience Experiment”) as measured on a three-point scale ranging from 1 (“Never”) to 3 (“More Than Twice”). We account for whether the participant is a student of economics or business studies with a dummy variable (“Economics Student”) We find some evidence that subjects who donate more frequently outside the laboratory also donate more in our experiment, and, somewhat surprisingly, that economics students donate more than students of other disciplines, although both results are only marginally significant. Confirming our non-parametric analysis, having to wear a bracelet as reminder of participation in the experiment has no significant effect on donations.

<sup>7</sup>Table 1 reveals that there are no significant differences in this measure across treatments.

Table 3: Regression Results Donations

	(1)	(2)	(3)	(4)
Constant	4.20 (3.20)	3.25 (3.73)	4.75 (4.54)	3.61 (3.66)
Bracelet	-0.06 (1.08)			0.93 (2.84)
Bracelet $\times$ Charity				-0.46 (1.21)
Anticipated Memory		0.30 (0.56)	-0.14 (1.02)	
Male	0.18 (1.09)	0.18 (1.09)	0.16 (1.07)	0.12 (1.11)
Charitable Donations	1.10* (0.58)	1.13* (0.60)	1.18* (0.61)	1.34 (0.87)
Experience Experiments	-0.28 (1.02)	-0.34 (1.02)	-0.35 (0.77)	-0.22 (1.04)
Economics Student	1.86* (1.10)	1.85* (1.08)	1.81 (1.06)	1.80 (1.11)
$N$	121	120	120	121
$R^2$	0.06	0.06	0.06	0.06

Regression of donation on treatment dummy and control variables. Columns (1), (2), and (4) report results from simple OLS regressions. Column (3) reports results from the second stage of an instrumental variables (2SLS) regression where we instrument anticipated memory with our treatment variation. There are two missing observations due to incomplete questionnaires. Standard errors in parenthesis. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Subjects in the bracelet treatment report increased anticipated memory, but still we can of course ensure only partial compliance. It is thus possible that subjects whose anticipated memory was not affected by wearing the bracelet obscure the treatment effect. To investigate this, we first directly regress donations on anticipated memory in column 2 of Table 3, but the coefficient is insignificant ( $p$ -value of 0.52). We next conduct an instrumental variables (2SLS) regression analysis, where we use wearing the bracelet and the other questionnaire

items as instruments for anticipated memory. In the first stage regression, having to wear a bracelet has a highly significant impact on anticipated memory (coefficient of 1.08 and  $p$ -value of 0.00). All other questionnaire items have no significant effect ( $p$ -values of at least 0.13). Results from the second stage of the instrumental variables regression as reported in column (3) in Table 3 reveal that anticipated memory has no significant impact on donations.

## 4 Discussion

In this section we discuss alternative explanations that might reconcile self-signaling theory with our negative findings.

### Effectiveness of the Treatment Manipulation

There may be several reasons to doubt the effectiveness of the treatment manipulation. First, the treatment effect may occur mostly (or only) for participants with previous experience in wearing a similar bracelets, as they can better anticipate the bracelet's effect on memory. In the questionnaire of the first part of the experiment, we therefore ask subjects in the bracelet treatment whether they have experience wearing similar bracelets. Possible answers are "Yes" and "No." Within the bracelet treatment, participants with experience donate on average 7.88 whereas those without experience donate only 5.70, with corresponding standard deviations of 6.58 and 4.81, respectively. Even with 64 independent observations this behavioral difference is not statistically significant ( $p$ -value of 0.24 from a two-sided Mann-Whitney ranksum test). A comparison of experienced subjects in the bracelet treatment with all subjects in the control treatment shows no significant difference either ( $p$ -value of 0.50 two-sided Mann-Whitney ranksum test). We conclude that incorrectly anticipating the feeling of being reminded of the experiment cannot explain the absence of any treatment effect.<sup>8</sup>

Second, the bracelet may remind subjects of their participation in the experiment, but not of their donation decision. To test this, we ask subjects in the questionnaire of the second part of the experiment whether they can remember their donation. All subjects answered affirmatively. Since the donation is the only decision that subjects make and is remember by all, it seems unlikely that reminding subjects of their participation in the experiment does not also remind them of their donation.<sup>9</sup>

---

<sup>8</sup>Since having experiences with such bracelets is of course endogenous, subjects with experiences in wearing such bracelets might display some particular donation behavior because of unobserved characteristics. For that reason we focus on having to wear a bracelet as exogenous treatment variation.

<sup>9</sup>One participant in the bracelet treatment argued during the second part of the experiment that he would like to keep the bracelet on, because the bracelet would remind him of donating to charity in the future. This further suggests that the bracelet was connected not only to the experiment, but also to the donation situation.

Third, one might argue that participants who anticipate guilt from low donations plan to remove the bracelet after leaving the laboratory. Since the payout in the second part of the experiment was conditional on wearing the bracelet, this implies that fewer subjects should return for the second part of the experiment in our bracelet treatment than in our control treatment. This is not the case: 81% of the participants in our control treatment, and 83% of the participants in our bracelet treatment return for the second part of the experiment, a difference which is insignificant on a two-sided Fischer exact test (with a  $p$ -value of 0.82).

Finally, having to wear the bracelet may focus subjects on their intention to pick up the money in the second part of the experiment. If wearing the bracelet thus becomes a self-signal of greed, it might reduce donations. We don't believe that picking up the money is a strong signal of selfishness, as in both treatments almost all participants return for the second part of the experiment. Moreover, since the second questionnaire was framed as being part of the experiment, finishing the experiment is a perfectly acceptable reason for returning. Note that even if wearing a bracelet makes people feel more greedy, maintaining a positive self-image may require higher instead of lower donations.

### **Social Image**

When designing the experiment we were concerned that results might be confounded by the possibility that wearing a bracelet induces social image concerns towards the experimenter or other people. To exclude social image concerns inside the laboratory, experimental procedures with the sealed envelopes and instructions stress that no one but the subjects themselves can observe their donations. Although wearing the bracelets is innocuous, we cannot exclude the possibility that subjects are questioned by others concerning the bracelet. In our bracelet treatment we thus ask subjects on how often others commented on the bracelets in the past two weeks. Answers are measured on a five-point scale ranging from 1 ("Never") to 5 ("Very Often").

Participants in our bracelet treatment did receive comments concerning the bracelets, where the mean answer to the relevant question is 2.91 corresponding to "From Time to Time." These interactions should not induce social image concerns in principle, as subjects could safely pretend to have made substantial donations, even if they in fact donated very little. Social interactions may even amplify self-image concerns by reminding subjects of their participation in the experiment. However, inquiries by others could trigger social image concerns if participants are averse to lying. To make sure that these subjects do not feel compelled to tell others about their donations, the instructions urge participants not to talk to anyone about the content of the experiment or their donation until the entire experiment is over. In

our questionnaire in the second part of the experiment we nevertheless ask how often subjects talked about their donation during the past two weeks. Answers are measured on a five-item scale ranging from 1 (“Never”) to 5 (“Very often”). The average score is 1.60 in our control treatment and 1.85 in our bracelet treatment, both corresponding to the answer “Almost Never”. A two-sided Mann-Whitney ranksum test reveals no significant differences ( $p$ -value of 0.18), and there is no statistically significant correlation between receiving comments on the bracelet and talking about their donation in the bracelet treatment (Spearman’s rho of 0.11 with  $p$ -value of 0.40). Although some subjects in our bracelet treatment are approached by others, they do not talk about their donation, and social signaling is not a major concern.<sup>10</sup>

In any case, social signaling should increase donations in our bracelet treatment as compared to our control treatment. Yet despite the possibility for social interaction, we do not find that participants donate more when being forced to wear a bracelet as potential signal of their participation in the experiment.

### **Bracelet as Gift or Burden**

Falk (2007) documents that people might donate more to charity if they previously receive an unconditional gift. If subjects consider the bracelets as a gift, increased donations may be attributable to reciprocity and not to self-signaling motives. Alternatively, participants could consider wearing the bracelets as a burden for which they need to be compensated, and thus donate less to the German Red Cross. To avoid these concerns, we use bracelets in the rather neutral colors yellow and orange without inscription. There is no market for buying these bracelets in small quantities for personal use as some kind of jewelry. Moreover, the experimental rules and the process of attaching the bracelet with the pincers emphasize that wearing the bracelet is a requirement necessary to receive additional payment. We therefore do not think that many subjects consider having to wear the bracelet as a gift. We also do not think the bracelet is perceived as a burden, since similar bracelets are often used at festivals or holiday resorts, and they are not uncomfortable to wear.

Nevertheless, to get a better feeling for subjects’ perception of the bracelets, we ask in the bracelet treatment in the questionnaire of the first part of the experiment, whether they would have preferred not to wear the bracelet. There is no clear direction to the response, as 17% of the respondents prefer not to wear the bracelet, 34% have no strong opinion, and

---

<sup>10</sup>One could argue that subjects underreport social interactions because they do not want to admit non-compliance with the instructions. However, 52% of participants in our control and 62% of participants in our bracelet treatment admit talking about their donation more often than “Never.” We therefore think that the data should reveal if substantially more participants in our bracelet treatment felt compelled to talk more about their donation than in our control treatment.

48% do not prefer not to wear the bracelet.<sup>11</sup> Preferences for not wearing the bracelet are not significantly correlated with donations (Spearman’s rho of 0.18 with  $p$ -value of 0.14). It thus is also not the case that participants with the intention to donate little more strongly dislike wearing the bracelet, since the bracelet will remind them of their low donation.

### **Heterogeneous Image Concerns**

In this study we increase the importance of future self-image concerns by forcing subjects to wear a bracelet as reminder of their participation in the experiment. Bénabou and Tirole (2006, Section IIB) argue that boosting image rewards need not have strong effects on prosocial behavior if individuals differ in the strength of their image concerns. The reason is that making prosocial behavior more important for self-image induces higher donations from individuals with strong image concerns but intermediate altruism. This reduces donation incentives for altruistic individuals, since high donations now signal strong image concerns and not necessarily strong altruism.

If this argument is correct, individuals with strong self-image concerns should donate more, and strongly altruistic individuals should donate less in our bracelet treatment. Although we cannot directly observe the strength of our subjects’ image concerns or altruism, the reply to our questionnaire concerning donations outside the laboratory provides information on the latter. Even though donations reflect both altruism and image concerns, higher donations outside the laboratory must be positively connected to altruism, since otherwise donating to charity could not signal any altruism in the first place. Following the above argument, we should observe that subjects who often donate to charities outside the laboratory should donate less in the bracelet treatment. We investigate this argument in a regression analysis that includes the interaction of donations outside the laboratory with the treatment dummy (the interaction term has a mean of 1.12 with standard deviation of 1.27), reported in column (4) in Table 3. Intriguingly, the coefficient for the interaction of “Bracelet” with “Charity” is negative, while the coefficient for “Bracelet” now turns positive, but the coefficients are far from statistically significant despite the relatively large number of independent observations. Heterogeneity in image concerns certainly deserves more scrutiny but seems unable to explain the absence of a treatment effect in our experiment.

---

<sup>11</sup>We also record if participants in our bracelet treatment want to keep on wearing the bracelet after picking up their money in the second part of experiment. 15% of our participants in our bracelet treatment do not want to have the bracelet removed immediately. Finally, we look at whether participants in our bracelet treatment return earlier or later for the second part of the experiment than participants in our control treatment. If the bracelet is a burden (pleasure) to wear, subjects should return earlier (later) in the bracelet treatment. A two-sided exact Kolmogorov-Smirnov test cannot reject that the distribution of return days is the same across treatments ( $p$ -value of 0.88). We therefore conclude that participants in our experiment do not predominantly consider wearing the bracelet as gift or burden.

## Importance of Donation for Self-Image

Finally, one might argue that the donation decision is not very important for participants' long-term self-image, because it involves only 20 euro and individuals can "make up" for low donations by behaving more prosocially after the experiment. However, Bodner & Prelec (2003) argue that every opportunity to behave prosocially matters, as favorable self-image requires maintenance and thus periodical prosocial behavior. And Bénabou & Tirole (2011) suggest that not behaving prosocially today can make it more difficult to behave pro-socially tomorrow, since a decreased stock in self-image capital reduces incentives to uphold favorable beliefs. Not behaving prosocially just once thus puts individuals on a "slippery slope," leading to a substantial degradation of self-image in the long-run. These arguments imply that even relatively noncritical choices can be strongly affected by self-image concerns, consistent with the observation that some individuals follow strict internal rules concerning moral behavior. Finally, the monetary stakes in our experiment are larger than in other laboratory experiments often cited as an empirical motivation for self-signaling, for example Dana et al. (2007).

## 5 Conclusion

In this experiment we manipulate the salience of self-image concerns by giving participants a reminder of their actions in the laboratory. Although reminders increase anticipated memory of the experiment, we do not see an increase in donations, in contrast to the predictions of self-signaling theory. We do not find alternative explanations for our negative finding – bracelets as burden, heterogeneous image concerns, importance of donation decision for self-image – very convincing given our data. We thus conclude that in our specific experimental setup self-image concerns have no effect on charitable giving.

Future research could extend this line of research using different reminders or tasks. Moreover, the use of bracelets as a reminder creates a link between behavior inside and outside the lab. This gives a 'field flavor' to the laboratory results that may be of interest in other designs on social motivations.

## References

- Baumeister, R. (1998). The Self, in D. Gilbert, S. Fiske & G. Lindzey (eds), *The Handbook of Social Psychology*, McGraw-Hill, New York.
- Bénabou, R. & Tirole, J. (2004). Willpower and personal rules, *Journal of Political Economy* **112**(4): 848–887.



- Bénabou, R. & Tirole, J. (2006). Incentives and prosocial behavior, *American Economic Review* **96**(5): 1652–1678.
- Bénabou, R. & Tirole, J. (2011). Identity, morals, and taboos: Beliefs as assets, *Quarterly Journal of Economics* **126**(2): 805–855.
- Bodner, R. & Prelec, D. (2003). Self-signaling and diagnostic utility in everyday decision making, in I. Brocas & J. Carillo (eds), *The Psychology of Economic Decisions. Vol. 1. Rationality and Well-being*, Oxford University Press, pp. 105–126.
- Croson, R. & Gneezy, U. (2009). Gender differences in preferences, *Journal of Economic Perspectives* **47**(2): 448–474.
- Cueva, C. & Dessi, R. (2012). Charitable giving , self-image and personality, IDEI Working Paper No. 748 .
- Dana, J., Weber, R. A. & Kuang, J. X. (2007). Exploiting moral wiggle room: experiments demonstrating an illusory preference for fairness, *Economic Theory* **33**(1): 67–80.
- Falk, A. (2007). Gift exchange in the field, *Econometrica* **75**(5): 1501–1511.
- Fiske, S. T. (2009). *Social Beings: Core Motives in Social Psychology*, John Wiley and Sons, Ltd.
- Gneezy, A., Gneezy, U., Riener, G. & Nelson, L. D. (2012). Pay-what-you-want, identity, and self-signaling in markets, *Proceedings of the National Academy of Sciences* **109**(19): 7236–7240.
- Greiner, B. (2003). An online recruitment system for economic experiments, *Forschung und wissenschaftliches Rechnen* **63**: 79–93.
- Grossman, Z. (2009). Self-signaling versus social signaling in giving, mimeo, UC Santa Barbara .
- Grossman, Z. & van der Weele, J. (2013). Self-image and strategic ignorance in moral dilemmas, mimeo, UC Santa Barbara .
- Köszegi, B. (2006). Ego utility, overconfidence, and task choice, *Journal of the European Economic Association* **4**(4): 673–707.
- Mazar, N., Amir, O. & Ariely, D. (2008). The dishonesty of honest people: A theory of self-concept maintenance, *Journal of Marketing Research* **45**(6): 633–644.
- Shu, L. L., Gino, F. & Bazerman, M. H. (2011). Dishonest deed, clear conscience: When cheating leads to moral disengagement and motivated cognition, *Personality and Social Bulletin* **37**(3): 330–349.

## 6 Appendix: Picture Bracelets and Instructions

Figure 2: Bracelets Used in Experiment.



Below are the instructions for both treatments, as well as the questionnaires. The original instructions were in German.

## **Instructions**

The experiment consists of two parts. You will complete Part 1 today; Part 2 will start in 2 weeks. In the following we will explain the rules for both parts of the experiment.

### **Part 1**

In Part 1 of this experiment you can decide, how much out of 20 Euro you would like to donate to the German Red Cross. You have drawn an envelope marked with "For Red Cross" before going to your desk. In addition to the instructions this envelope contains one 10 Euro bill, one 5 Euro bill and 5 one Euro coins (20 Euro in total). The envelope further contains a questionnaire and a sheet with information about the activities of the German Red Cross in Syria. On your desk, you will also find an empty envelope that says "For Me."

After reading the instructions and filling out a short questionnaire, you can decide how much money you would like to keep for yourself, and how much you would like to donate to the Red Cross from the 20 Euro that we have given to you. You do so by transferring the amount of money that you would like to keep for yourself from the "For Red Cross" envelope to the "For Me" envelope. Please enclose the completed questionnaire in the "For Red Cross" envelope.

Once all participants have made their donation decision, we will ask one participant after another to come forward. After you have been called to come forward, please take your personal belongings and the two envelopes with you. You then insert the "For Red Cross" envelope (which contains the donation and the questionnaire) inside a box marked "Donations". Once you have put your envelope in the box, you are asked to confirm your participation in the experiment. You then leave the room taking with you your personal belongings and the envelope marked "For Me." The latter envelope contains the money you would like to keep for yourself.

**[Control] When exiting the room, we will remove from your wrist the bracelet that you have received from us. Therefore, after then first part of the experiment is over, you will not continue to wear the bracelet.**

**[Bracelet] The bracelet that we have put on you will serve as your private reminder of today's experiment. As we explain below, you can earn additional money by wearing the bracelet for two weeks.**

At the end of the experiment we will forward your donations to the Red Cross to support their activities concerning the civil war in Syria. You can contact us if you would like to receive further information about the donations collected in the experiment.

After you have left the room, this part of the experiment is over. We would like to emphasize again that we ensure your complete anonymity. Since your donation is sealed in an envelope nobody can know how much you have donated. Also the experimenters cannot trace back your donations to your name. Nobody but you thus knows how much you have donated.

To ensure the anonymity of all participants we would also like you not to talk about the experiment with anybody until July 12 when Part 2 and thus the entire experiment has been completed. We will say more about Part 2 of the experiment below. In case somebody asks you about the experiment, tell them that you participate in an economic

experiment, but that that you have been asked not to talk about it. Do not mention the contents of the experiment, and in particular do not talk about your own behaviour.

## Part 2

In the second part of the experiment, we ask you to report at our secretariat in at least two weeks time. There you can pick up another 10 Euro. Our address is

RuW Building, Fourth Floor, Room Number 4.235.

From July 8 you have one week to pick up your additional 10 Euro on any day of your own choosing. The office is open from 10 a.m. to 12 a.m. and from 1 p.m. to 4 p.m. After July 12 the experiment is finished. It is then no longer possible to pick up your additional money.

In the office it will be checked whether you have participated in the experiment. **[Only Bracelet: You will be eligible to receive the additional payment only if you did not put off the bracelet during the last two weeks.]** In that case you will receive an envelope, which contains your additional 10 Euros. You will also be asked to fill out a very short questionnaire and confirm the receipt of your money. This second part of the experiment does not require any decision-making and will not take more than two minutes.

## Questionnaire 1

Please answer the following questions.

1. What is your gender?
  - Female
  - Male
2. What is your field of study?
  - Economics or business administration
  - Sociology or philosophy
  - Psychology
  - Natural sciences or mathematics
  - Other
3. How often have you participated in an experiment in the FLEX laboratory?
  - Never
  - Once or twice
  - More than twice
4. How often do you donate to charity?
  - Never
  - Almost never
  - From time to time
  - Often
  - Very often
5. [Only Bracelet] Do you have experience wearing a bracelet like the one you are wearing now?
  - Yes
  - No
6. How often do you expect to remember today's experiment over the next two weeks?
  - Never
  - Almost never

From time to time

Often

Very often

7. [Only Bracelet] Would you have preferred not to wear the bracelet over the next two weeks?

Yes

No

I have no strong opinion on this

Please fold the questionnaire sheet and include it in the "Red Cross" envelope.

## Questionnaire 2

Please answer the following questions.

1. How often did you remember part 1 of the experiment over the last two weeks?

Never

Almost never

From time to time

Often

Very often

2. Can you remember the level of your donation in the experiment?

Yes

No

3. How often did you talk to anybody about your donation in the experiment?

Never

Almost never

From time to time

Often

Very often

4. [Only Bracelet] How often did people comment on the bracelet that you have been wearing?

- Never
- Almost never
- From time to time
- Often
- Very often

From the webpage of the German Red Cross

## **Syria: Help for Refugees**

The humanitarian situation in Syria is further worsening dramatically. More than 6 million people are affected by the armed conflict and its consequences. Many Syrians have left their homes to find protection and safety in refugee camps – in their own country and abroad. “In the past weeks the situation has become worse. More and more people are affected by the conflict. Those who can flee to neighbouring countries,” says the president of the German Red Cross, Dr. Rudolf Seiters. More than 1.5 million people have fled Syria, more than 4 million are on the run in their own country. In emergency camps they receive food, warm blankets, a bed, and medical support. Please help with your donation!

## **Help by Red Cross and Red Half-Moon in 2012**

### **Distribution of:**

- 2 million food packs
- 330.000 hygiene sets and baby sets
- 100.000 kitchen sets
- 700.000 blankets and mattresses
- 30.000 packets with school material
- 5.500 ambulance operations from 10 mobile health centers
- Access to fresh drinking water for millions of people

## **This is How We Will Help in 2013, Your Donation Counts:**

### **Securing basic hygienic needs for the affected families:**

- Support of 63.000 families with hygiene sets
- Support of 9.000 families with small children with diapers and baby soap
- Water provision and water disinfection for up to 18.000 families

### **Food for affected families:**

- Food distribution for 6.000 families
- Kitchen equipment for the poorest 2.000 families

### **Logistic help:**

- Extension of existing refugee camps
- Operation of ware houses required for the support of the camp in habitants
- Provision of transport for medical purposes

[Information material also included pictures of affected families.]